AMENDMENTS TO THE CLAIMS:

Please amend claim 1 and cancel claims 141-143 without prejudice or disclaimer. as follows. This listing of claims replaces all prior versions and listings of claims.

LISTING OF CLAIMS:

1. (Currently Amended) A method for introducing a large nucleic acid molecule into a cell, comprising:

(a) contacting a large nucleic acid molecule with a delivery agent;

(b) contacting a cell with a delivery agent or applying a delivery agent to the cell; and

(c) contacting the cell with the nucleic acid molecule, whereby the nucleic acid molecule is delivered into the cell, wherein steps (a) and (b) are performed sequentially in any order, followed by step (c), provided that if the delivery agent is energy it is not applied to the nucleic acid molecule and it is not applied to the cell after contacting the cell with the nucleic acid molecule.

2. (Previously Presented) The method of claim 1, wherein:

the nucleic acid molecule is contacted with an agent that increases contact between the nucleic acid molecule and the cell; and

an agent is applied to the cell that enhances permeability of the cell.

3. (Original) The method of claim 1, wherein the nucleic acid molecule is greater than about 0.6 megabase.

4. (Original) The method of claim 1, wherein the nucleic acid molecule is greater than about 1 megabase.

5. (Original) The method of claim 1, wherein the nucleic acid molecule is greater than about 5 megabases.

6. (Previously Presented) The method of claim 1, wherein the nucleic acid molecule is a natural chromosome, an artificial chromosome, a fragment of a chromosome that is greater than about 0.6 megabase or naked DNA that is greater than about 0.6 megabase.

7. (Original) The method of claim 1, wherein the nucleic acid molecule is an artificial chromosome.

8. (Previously Presented) The method of claim 1, wherein the nucleic acid molecule is an artificial chromosome expression system (ACes).

9. (Previously Presented) The method of claim 1, wherein the nucleic acid molecule is contacted with the delivery agent *in vitro* or *ex vivo*.

10. (Previously Presented) The method of claim 1, wherein the contacting of the nucleic acid molecule that has been contacted with the delivery agent with the cell is effected *in vitro* or *ex vivo*.

11. (Previously Presented) The method of claim 1, wherein

contacting the nucleic acid with a delivery agent is effected by mixing the nucleic acid with a delivery agent; and

applying an agent to the cell that enhances permeability comprises applying ultrasound or electrical energy to the cell.

12. (Original) The method of claim 1, wherein a delivery agent comprises a cationic compound.

13. (Original) The method of claim 12, wherein the cationic compound is selected from the group consisting of a cationic lipid, a cationic polymer, a mixture of cationic lipids, a mixture of cationic polymers, a mixture of a cationic lipid and a cationic polymer, a mixture of a cationic lipid and a neutral lipid, polycationic lipids, non-liposomal forming lipids, activated dendrimers, and a pyridinium chloride surfactant.

14. (Previously Presented) The method of claim 12, wherein the delivery agent is a composition that comprises one or more cationic compounds, wherein the compound is selected from the group consisting of N-[1-(2,3-dioleyloxy)propyl]-N,N,N-trimethylammonium chloride (DOTMA), dioleoylphosphatidylethanolamine (DOPE), 2,3-dioleyloxy-N-[2(spermine-carboxamido)ethyl]-N,N-dimethyl-1-propanaminiumtrifluoroacetate (DOSPA), $C_{52}H_{106}N_6O_4 \cdot 4CF_3CO_2H$, $C_{88}H_{178}N_8O_4S_2 \cdot 4CF_3CO_2H$, $C_{40}H_{84}NO_3P \cdot CF_3CO_2H$, $C_{50}H_{103}N_7O_3 \cdot 4CF_3CO_2H$, $C_{55}H_{116}N_8O_2 \cdot 6CF_3CO_2H$, $C_{49}H_{102}N_6O_3A \cdot CF_3CO_2H$, $C_{44}H_{89}N_5O_3 \cdot 2CF_3CO_2H$, $C_{100}H_{206}N_{12}O_4S_2 \cdot 8CF_3CO_2H$, $C_{41}H_{78}NO_8P$) $C_{162}H_{330}N_{22}O_9 \cdot 13CF_3CO_2H$, $C_{43}H_{88}N_4O_2 \cdot 2CF_3CO_2H$, $C_{43}H_{88}N_4O_3 \cdot 2CF_3CO_2H$, and (1-methyl-4-(1-octadec-9-enyl-nonadec-10-enylenyl) pyridinium chloride.

15. (Original) The method of claim 1, wherein a delivery agent is energy.

16. (Original) The method of claim 15, wherein the cell is treated with energy.

17. (Original) The method of claim 15, wherein the energy is ultrasound energy.

18. (Original) The method of claim 17, wherein the ultrasound energy is applied to the cell for about 30 seconds to about 5 minutes.

19. (Original) The method of claim 17, wherein the ultrasound energy is applied as one continuous pulse.

20. (Original) The method of claim 17, wherein the ultrasound energy is applied as two or more intermittent pulses.

21. (Original) The method of claim 20, wherein the intermittent pulses of the ultrasound energy are applied for substantially the same length of time, at substantially the same energy level.

22. (Original) The method of claim 20, wherein the intermittent pulses vary in energy level, the length of time applied, or energy level and the length of time applied.

23. (Original) The method of claim 11, wherein prior to applying the ultrasound energy to the cell, the cell is contacted with a cavitation compound.

24. (Original) The method of claim 17, wherein prior to applying the ultrasound energy to the cell, the cell is contacted with a cavitation compound

25. (Original) The method of claim 11, wherein the agent that enhances permeability comprises applying electrical energy.

26. (Original) The method of claim 1 that comprises:

(a) applying ultrasound or electrical energy to the cell; and

(b) contacting the cell, upon conclusion of the application of ultrasound or electrical energy, with a mixture of the nucleic acid molecule and a delivery agent, whereby the nucleic acid molecule is delivered into the cell.

27. (Original) The method of claim 26, wherein the agent is a cationic compound.

28. (Original) The method of claim 25, wherein the energy is ultrasound.

29. (Original) The method of claim 28, wherein prior to applying the ultrasound energy, the cell is contacted with a cavitation compound.

30. (Original) The method of claim 1 wherein the cell is a plant cell or an animal cell.

31. (Original) The method of claim 1, wherein the cell is selected from the group consisting of a nuclear transfer donor cell, a stem cell, a primary cell, a cell from an immortalized cell line and a cell capable of the generation of a specific organ.

32. (Previously Presented) The method of claim 1, wherein the cell is selected from the group consisting of an immortalized cell, an embryonic cell, a transformed cell and a tumor cell.

33. (cancelled)

34. (Original) A method for delivering a nucleic acid molecule into a cell comprising:

(a) contacting the cell in the absence of the nucleic acid molecule with a delivery agent, and applying ultrasound energy or electrical energy to the cell, wherein the contacting and applying are performed sequentially or simultaneously; and then

(b) contacting the cell with the nucleic acid molecule, whereby the nucleic acid molecule is delivered into the cell.

35. (Original) The method of claim 34, wherein the delivery agent comprises a cationic compound.

36. (Previously Presented) The method of claim 34, wherein the delivery agent is a composition that comprises one or more cationic compounds, wherein the compound is selected from the group consisting of N-[1-(2,3-dioleyloxy)propyl]-N,N,N-trimethylammonium chloride (DOTMA), dioleoylphosphatidylethanolamine (DOPE), 2,3-dioleyloxy-N-[2(spermine-carboxamido)ethyl]-N,N-dimethyl-1-propanaminiumtrifluoroacetate (DOSPA), $C_{52}H_{106}N_6O_4 \cdot 4CF_3CO_2H$, $C_{88}H_{178}N_8O_4S_2 \cdot 4CF_3CO_2H$, $C_{40}H_{84}NO_3P \cdot CF_3CO_2H$, $C_{50}H_{103}N_7O3 \cdot 4CF_3CO_2H$, $C_{55}H_{116}N_8O_2 \cdot 6CF_3CO_2H$, $C_{49}H_{102}N_6O_3 \cdot 4CF_3CO_2H$, $C_{44}H_{89}N_5O_3 \cdot 2CF_3CO_2H$, $C_{100}H_{206}N_{12}O_4S_2 \cdot 8CF_3CO_2H$, $C_{41}H_{78}NO_8P$) $C_{162}H_{330}N_{22}O_9 \cdot 13CF_3CO_2H$,

$C_{43}H_{88}N_4O_2 \cdot 2CF_3CO_2H$, $C_{43}H_{88}N_4O_3 \cdot 2CF_3CO_2$, and (1-methyl-4-(1-octadec-9-enyl-nonadec-10-enylenyl) pyridinium chloride.

37. (Original) The method of claim 34, wherein the delivery agent is 1-methyl-4-(1-octadec-9-enyl-nonadec-10-enylenyl) pyridinium chloride.

38. (Original) The method of claim 34, wherein the nucleic acid molecule is greater than about 1 megabase.

39. (Previously Presented) The method of claim 34, wherein the nucleic acid molecule is selected from the group consisting of an artificial chromosome, a artificial chromosome expression system (ACes) and a natural chromosome or a fragment thereof that is greater than at least about 0.6 megabase.

40. (Original) The method of claim 35, wherein the cationic compound is selected from the group consisting of a cationic lipid, a cationic polymer, a mixture of cationic lipids, a mixture of cationic polymers, a mixture of a cationic lipid and a cationic polymer, a mixture of a cationic lipid and a neutral lipid, polycationic lipids, non-liposomal forming lipids, activated dendrimers and a pyridinium chloride surfactant.

41. (Original) The method of claim 34, wherein the energy is ultrasound.

42. (Previously Presented) The method of claim 41, wherein the ultrasound energy is applied to the cell at between about 0.1 and 1 watt/cm2, for about 30 seconds to about 5 minutes.

43. (Original) The method of claim 41, wherein the ultrasound energy is applied as one continuous pulse or as two or more intermittent pulses.

44. (Original) The method of claim 43, wherein:

the pulses are intermittent pulses; and

the intermittent pulses of the ultrasound energy are applied for substantially the same length of time, at substantially the same energy level.

45. (Original) The method of claim 43, wherein:

the pulses are intermittent pulses; and

the intermittent pulses vary in energy level, the length of time applied, or energy level and the length of time applied.

46. (Original) The method of claim 34, wherein prior to applying the ultrasound energy, the cell is contacted with a cavitation compound.

47. (Original) The method of claim 34, wherein the cell is selected from the group consisting of an embryonic stem cell, a nuclear transfer donor cell, a stem cell and a cell capable of the generation of a specific organ.

48-58. Cancelled

59. (Previously Presented) A method for delivering a large nucleic acid molecule into a cell, comprising:

(a) contacting the nucleic acid molecule with a composition that comprises a cationic lipid, wherein: the cationic lipid composition comprises 2,3-dioleyloxy-N-[2(spermine-carboxamido)ethyl]-N,N-dimethyl-1-propanaminiumtrifluoroacetate (DOSPA) and dioleoylphosphatidylethanolamine (DOPE); and the nucleic molecule is at least 5 megabases; and then

(b) contacting the nucleic acid molecule with a cell, wherein steps (a) and (b) are performed simultaneously or sequentially.

60. (cancelled)

61. (Previously Presented) The method of claim 59, wherein the nucleic acid molecule is a natural chromosome, an artificial chromosome, a fragment of a chromosome, or naked DNA.

62. (Previously Presented) The method of claim 59, wherein the cell is selected from the group consisting of a plant cell and an animal cell.

63. (Previously Presented) The method of claim 59, wherein the cell is selected from the group consisting of a primary cell, an immortalized cell, an embryonic cell, a stem cell, a transformed cell and a tumor cell.

64. (Previously Presented) The method of claim 59, wherein the nucleic acid molecule is contacted with the cell *in vitro* or *ex vivo*.

65-140. Cancelled

141. Cancelled

142. Cancelled

143. Cancelled

144. (Previously Presented) The method of claim 1, wherein the nucleic acid molecule is about 10 megabases to about 450 megabases.

145. (Previously Presented) The method of claim 1, wherein the nucleic acid molecule is about 90 megabases to about 120 megabases.

146. (Previously Presented) The method of claim 1, wherein the nucleic acid molecule is about 15 megabases to about 50 megabases.

147. (Previously Presented) The method of claim 59, wherein the nucleic acid molecule is about 10 megabases to about 450 megabases.